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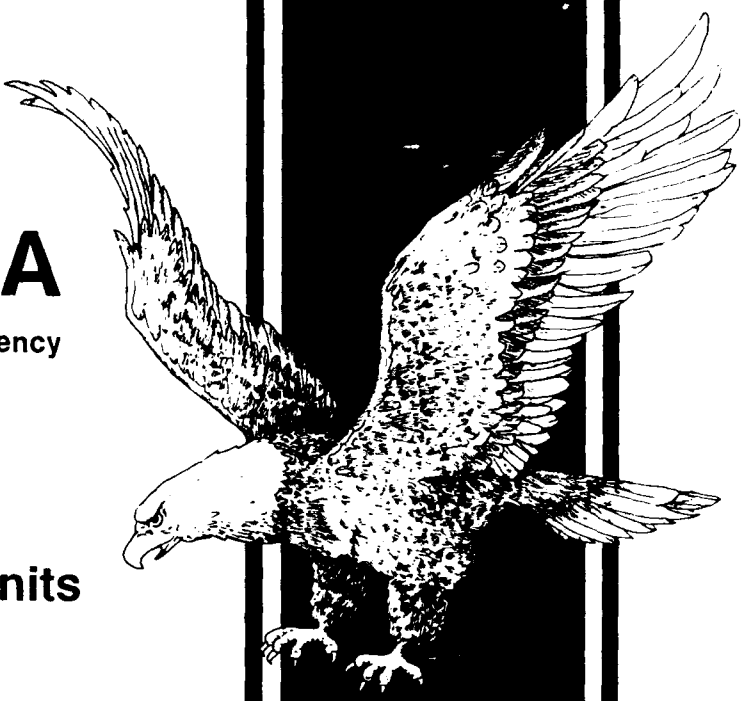

USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Enhanced Preliminary Assessment Report:

Sun Prairie Army Housing Units Sun Prairie, Wisconsin

November 1989

prepared for

Commander
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland 21010-5401

prepared by

Environmental Research Division
Argonne National Laboratory
Argonne, Illinois 60439

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Argonne National Laboratory has conducted an enhanced preliminary assessment of the Army housing property located in Sun Prairie, WI. The objectives of this assessment include identifying and characterizing all environmentally significant operations, identifying areas of environmental contamination that may require immediate remedial actions, identifying other actions which may be necessary to resolve all identified environmental problems, and identifying other environmental concerns that may present impediments to the expeditious sale of this property.

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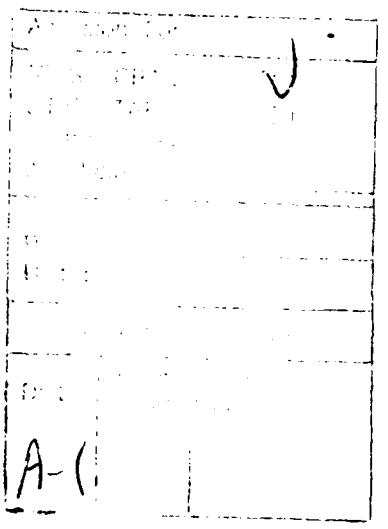
SUMMARY

The Sun Prairie housing area located in Sun Prairie, Wis., does not present an imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic constituents have ever been released from this property. No immediate remedial actions are warranted for the site.

Although these housing units were originally developed in conjunction with Truax Air Field, all available documentation and circumstantial evidence suggest that the housing property was wholly independent of Truax Air Field's operational activities. No wastes associated with the operation and maintenance of Truax Air Field have ever been delivered to or managed at this housing property. Furthermore, this housing property existed independently of Truax Air Field with respect to water, sewer, and electrical utilities.

Standard materials used in construction of these housing units included asbestos-containing floor tiles and exterior siding. However, these materials are all in good condition.

No action is recommended prior to the release of this property.



1 INTRODUCTION

In October 1988, Congress passed the Defense Authorization Amendments and Base Closure and Realignment Act, Public Law 100-526. This legislation provided the framework for making decisions about military base closures and realignments. The overall objective of the legislation is to close and realign bases so as to maximize savings without impairing the Army's overall military mission. In December 1988, the Defense Secretary's ad hoc Commission on Base Realignment and Closure issued its final report nominating candidate installations. The Commission's recommendations, subsequently approved by Congress, affect 111 Army installations, of which 81 are to be closed. Among the affected installations are 53 military housing areas, including the Sun Prairie housing area addressed in this preliminary assessment.[1]

Legislative directives require that all base closures and realignments be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA). As a result, NEPA documentation is being prepared for all properties scheduled to be closed or realigned. The newly formed Base Closure Division of the U.S. Army Toxic and Hazardous Materials Agency is responsible for supervising the preliminary assessment effort for all affected properties. These USATHAMA assessments will subsequently be incorporated into the NEPA documentation being prepared for the properties.

This document is a report of the enhanced preliminary assessment (PA) conducted by Argonne National Laboratory (ANL) at the Army stand-alone housing area in Sun Prairie, Wis.

1.1 AUTHORITY FOR THE PA

The USATHAMA has engaged ANL to support the Base Closure Program by assessing the environmental quality of the installations proposed for closure or realignment. Preliminary assessments are being conducted under the authority of the Defense Department's Installation Restoration Program (IRP); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 91-510, also known as Superfund; the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499; and the Defense Authorization Amendments and Base Closure and Realignment Act of 1988, Public Law 100-526.

In conducting preliminary assessments, ANL has followed the methodologies and procedures outlined in Phase I of the IRP. Consequently, this PA addresses all documented or suspected incidents of actual or potential release of hazardous or toxic constituents to the environment.

In addition, this PA is "enhanced" to cover topics not normally addressed in a Phase I preliminary assessment. Specifically, this assessment considers and evaluates the following topical areas and issues:

- Status with respect to regulatory compliance,
- Asbestos,
- Polychlorinated biphenyls (PCBs),
- Radon hazards (to be assessed and reported on independently),
- Underground storage tanks,
- Current or potential restraints on facility utilization,
- Environmental issues requiring resolution,
- Health-risk perspectives associated with residential land use, and
- Other environmental concerns that might present impediments to the expeditious "excessing," or transfer and/or release, of federally owned property.

1.2 OBJECTIVES

This enhanced PA is based on existing information from Army housing records of initial property acquisition, initial construction, and major renovations and remodeling performed by local contractors or by the Army Corps of Engineers. The PA effort does not include the generation of new data. The objectives of the PA include:

- Identifying and characterizing all environmentally significant operations (ESOs),
- Identifying property areas or ESOs that may require a site investigation,
- Identifying ESOs or areas of environmental contamination that may require immediate remedial action,
- Identifying other actions that may be necessary to address and resolve all identified environmental problems, and
- Identifying other environmental concerns that may present impediments to the expeditious transfer of this property.

1.3 PROCEDURES

The PA began with a review of Army housing records located at Fort McCoy, Wis., approximately 130 miles northwest of Madison, Wis., the week of August 21, 1989. Additional information was obtained from conversations with personnel from the Sun Prairie Housing Office in Sun Prairie, Wis., on August 21. A site visit was conducted at Sun Prairie on August 21, 1989, at which time additional information was obtained through personal observations of ANL investigators. Photographs were taken of the housing units and surrounding properties as a means of documenting the condition of the housing units and immediate land uses. Site photographs are appended.

All available information was evaluated with respect to actual or potential releases to air, soil, and surface and ground waters.

Access to five unoccupied Sun Prairie housing units was obtained through the Sun Prairie Housing Manager at the time of the site visit.

2 PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY INFORMATION

The Sun Prairie housing area is located in south-central Wisconsin, in the town of Sun Prairie, Dane County. The property consists of 37 acres surrounded by farmland and residential properties. The 1984 estimated population of Sun Prairie was 13,000.[2]

Figures 1 and 2 show the general location of the facility.

2.2 DESCRIPTION OF FACILITY

Figure 3 presents the site plan of the housing property.

Housing Units

The Sun Prairie housing area consists of 110 housing units and one office building. The housing units were constructed in 1961. Fifty-four units are

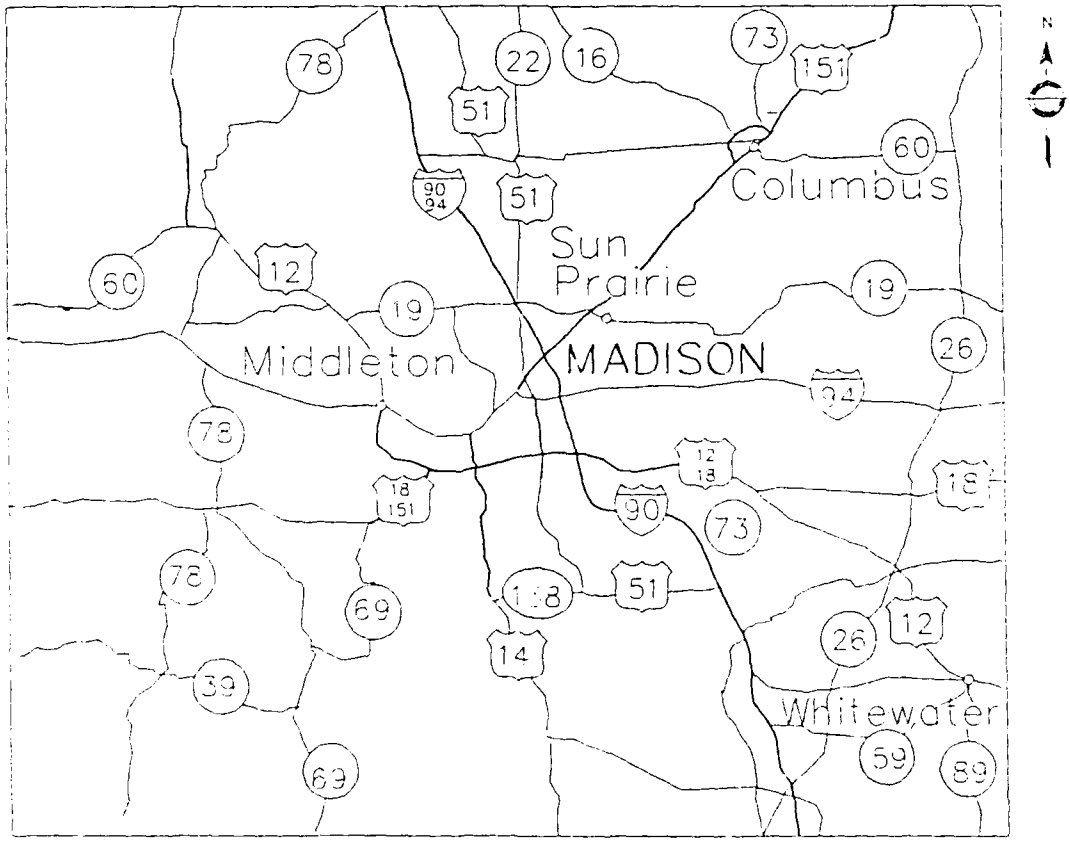


FIGURE 1 Location Map of Wisconsin Army Housing Facilities

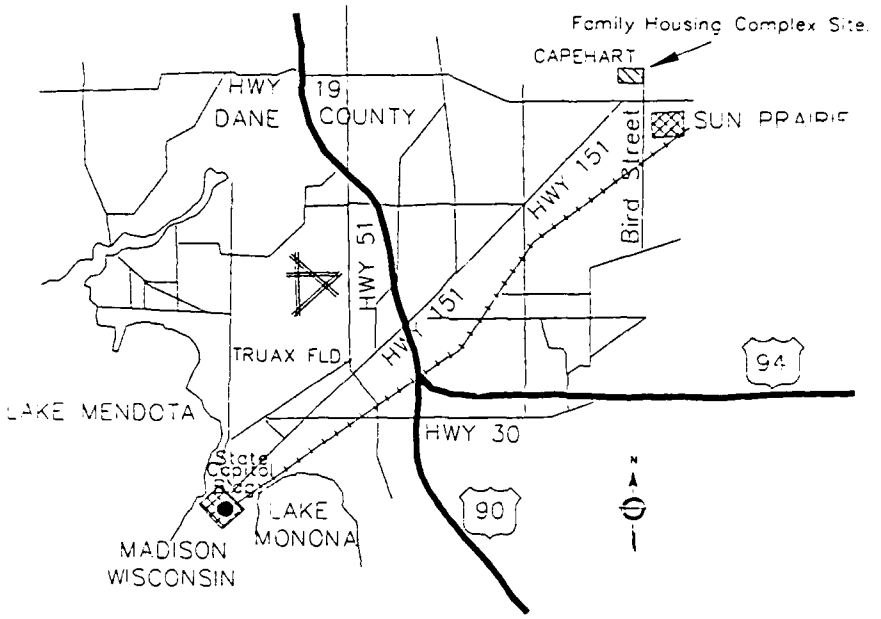


FIGURE 2 Vicinity Map of Sun Prairie Army Housing Units

three-bedroom duplexes with attached carports; 14 units are four-bedroom duplexes with attached carports. Twenty-one units are three-bedroom single-family homes with garages, and 21 units are four-bedroom single-family homes with attached garages. All buildings have basements. Furnaces and hot water heaters are located in the basement and fueled by natural gas. No insulation was observed on the hot water piping or the duct work.

Utilities

Since development of the property, the housing units have been supplied city water; there are no drinking water wells on the property. The property is connected to city power, and all telephone poles and transformers on-site are the responsibility of Sun Prairie's power company.

Sewage

The housing units have been connected to the municipal sanitary sewer since their construction. No problems with the sewer have ever been documented.

Fuel Storage

The housing units use natural gas, supplied by the local gas utility. Natural gas has been supplied to the units since their construction. No other fuels have been used or stored on the property.

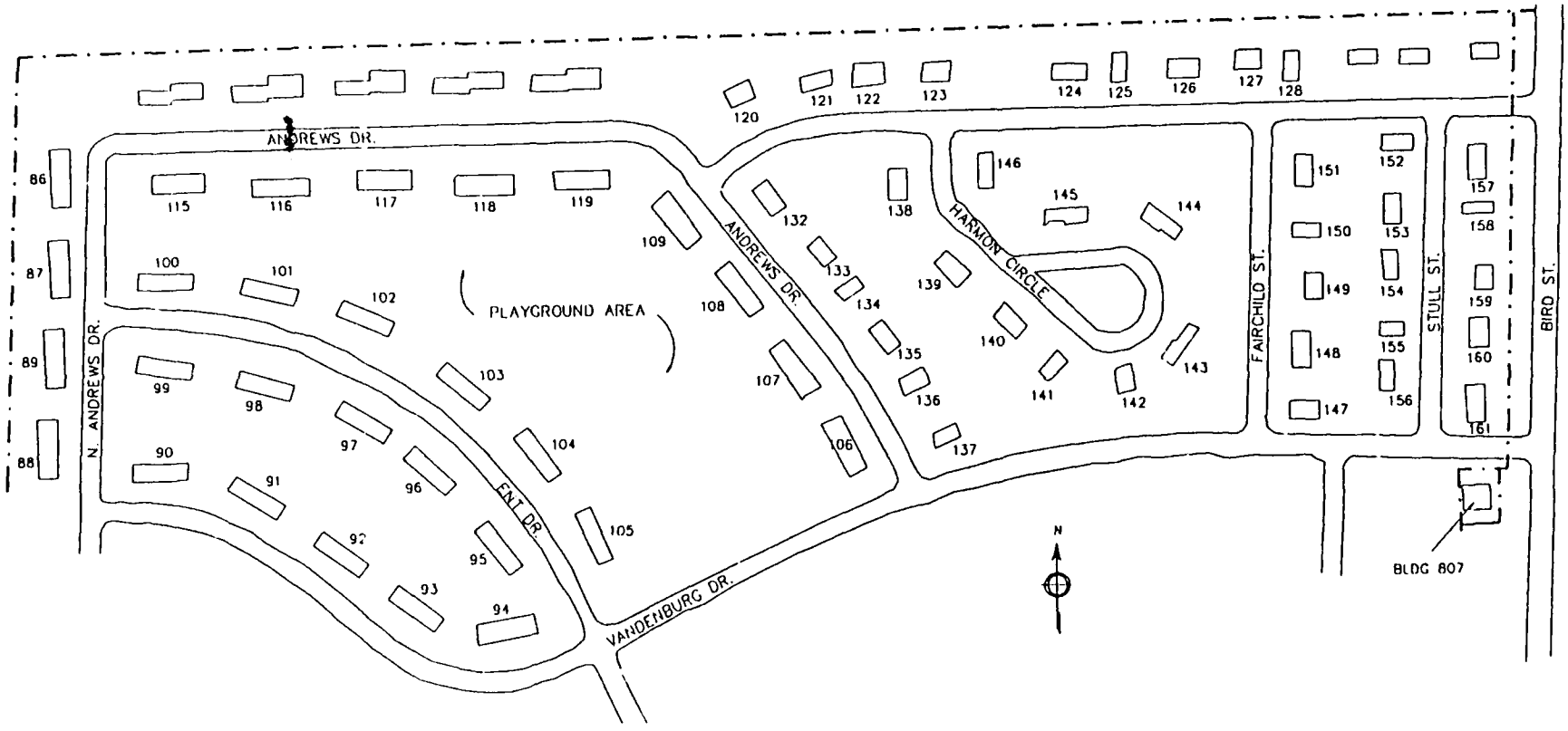


FIGURE 3 Site Plan Map of Sun Prairie Army Housing Units

Storm Drainage Systems

The housing units are connected to city storm drainage. No stormwater drainage problems have ever been documented.

Other Permanent Structures or Property Improvements

In addition to the housing units, a Quonset-type office and maintenance building is located at the entrance of the complex (Bldg. 807; see Fig. 3, lower right corner).

2.3 PROPERTY HISTORY

2.3.1 Truax Air Field

Truax Air Field is located in Madison, Wis. The Air Force used this property from 1954 to 1967. From 1967 to 1975, Truax Air Field was used by the Wisconsin Air National Guard for aircraft storage. In 1974, the Wisconsin Army National Guard acquired Truax Air Field. Since 1974, the Army Guard has used the facility for aircraft maintenance. No releases of maintenance-related waste from this property have been documented.

2.3.2 Sun Prairie Housing Units

The Sun Prairie housing area was built in 1961 as a stand-alone housing facility for Air Force personnel assigned to Truax Air Field, which is located southwest of the housing area. Since the property's development in 1961, no other permanent structures have been added.

2.4 ENVIRONMENTAL SETTING AND SURROUNDING LAND USE

The Sun Prairie housing units are located northeast of Madison, Wis., in Dane County. The land uses of the immediate area are agricultural and residential. A farm borders the property to the north. A primary school borders the property on the northeast. Residential areas are on the western and southern borders.

The surface of Dane County is an undulating plain with gently sloping hills and broad valleys in the central and eastern parts, where the county was glaciated. In the western unglaciated part, the topography is relatively rough, with narrow valleys and abrupt slopes. Most of the county is drained by streams flowing southeastward to the Rock River; only the northwestern one-fourth is drained by streams flowing west to the Wisconsin River. The most conspicuous elevation is the Blue Mounds on the western boundary, the highest point in southern Wisconsin, which reaches an elevation of approximately 1,700 feet above sea level. This is about 500 feet above the general level of the summit of the surrounding upland area, and nearly 1,000 feet above the Wisconsin

River 10 miles to the north. The uplands in the northeastern part of the county reach, in general, a maximum altitude of 1,000 feet. In the southwestern part they reach about 1,100 feet, while those in the western part reach an altitude of 1,200 feet. The general altitude for the valley bottoms in the eastern part is 800 to 860 feet above mean sea level (MSL). The lakes in Yahara Valley have altitudes in feet above MSL as follows: Lake Kegonsa, 824; Lake Waubesa, 844; Lake Monona, 845; and Lake Mendota, 849. The valley bottom along the Wisconsin River on the northwest boundary of Dane County reaches an altitude of only about 740 feet, some 60 to 100 feet lower than the lowest valley bottom in the county's eastern part.[3,4]

2.5 GEOLOGIC AND HYDROLOGIC SETTINGS

Dane County is located on unconsolidated glacial till ranging from approximately 6 feet to 300 feet in depth. The thickness of the glacial drift varies greatly because of the uneven surface upon which it is deposited, and because of differences in the accumulation of drift in ridges and depressions through the direct work of glacial deposition. The soils, which are glacial in origin, consist of an unsorted and unstratified heterogeneous mixture of clay, silt, sand, and gravels. The till overlies the St. Lawrence Dolomite and the Tunnel City Group, which are Cambrian in age.[3] As expected, depth to bedrock within the area is variable; it is reported in some areas to be 6-30 feet, in others to be greater than 258 feet.[3,4]

The overlying Tunnel City Group, which consists of the Lone Rock and the Mazomanie formations that intertongue, is in sharp contact with the Wonewoc Formation. The Lone Rock Formation is especially well developed in southwestern, southern, and eastern Wisconsin. It is subdivided into the Birkmose, Tomah, and Reno members. The characteristic lithologies are: (1) fine-grained glauconitic sandstone; (2) silty, sandy, and calcareous shale; (3) thin beds (less than 12 inches) of rip-up pebbles (intra-clasts); and (4) sandy, glauconitic and shaly dolomite with rip-ups in its lower parts.[4,5]

The Mazomanie Formation is best developed in the vicinity of the Wisconsin Arch in south-central Wisconsin, there extending southward to the vicinity of Madison. The Mazomanie is a fine-grained, moderately sorted, thin- to medium-bedded, cross-bedded, and locally burrowed sandstone. It is a tongue in the Lone Rock Formation, thinning as it extends southward and disappearing in southern Wisconsin.[4,5]

The Tunnel City Group is overlain by the St. Lawrence Formation; the contact is sometimes sharp and sometimes transitional. The St. Lawrence is generally greater than 50 feet thick in southwestern Wisconsin and is less than 40 feet thick in eastern Wisconsin. It gradually thins and ends as it extends northward. The St. Lawrence consists of the Black Earth and Lodi members. In southern areas of the state, the Tunnel City Group may be overlain by the Black Earth Member, which thins to the north and is eventually confined within the Lodi. The Black Earth Member may be a silty, thin-bedded dolomite or a medium-bedded algal dolomite. The Lodi Member is primarily thin-bedded dolomite, sandy siltstone, and dolomitic fine-grained sandstone. The St. Lawrence Formation in turn is overlain by the Jordan Sandstone, which is the upper unit

of the Cambrian system of rocks. The contact may be either unconformable or transitional.[4,5]

All the geological formations have been drawn upon for water supplies, but the principle water-bearing horizons are the Upper Cambrian sandstone and the surface gravel and sands. The water level is near the surface in the valley bottoms and on the lower slopes of the uplands. It is at various depths below the surface on the hills and uplands, depending on the elevations above the adjacent valleys. In general, the water level is usually less than 100 feet below the surface in the eastern part. In the western part, where hills rise higher above the level of the running streams, many wells reach depths of 200 to 300 feet before reaching a sufficient water supply.[4] In the area of the Sun Prairie housing units, depth to groundwater is reportedly less than 10 feet.

Springs are quite common in Dane County on the lower slopes of the valleys. A state fish hatchery is located at the site of a small group of springs four miles south of Madison. These springs issue from the drift. One spring near Mt. Horeb is used to run an electric light plant. Several springs, including the Merrill and Livesey springs, are located on the west of Lake Mendota. The Bryant Mineral Spring near Madison satisfies a large demand for spring water in the local area. The Keyes Spring is located on the east side of Lake Monona. Other springs occur on many of the small streams that flow into the Yahara lakes, and along Black Earth Creek. The White Cross Spring also supplies the local Madison area.

The major contribution of moisture for Wisconsin rainfall is the Gulf of Mexico and the tropical waters of the Atlantic and Caribbean. In the last 45 years, the extreme variations in the total annual rainfall at Madison have ranged from a minimum of 13 inches to a maximum of 52 inches. A considerable portion of the annual precipitation of central Wisconsin falls in the form of snow.

The temperature conditions that prevail in any region are closely associated with the precipitation. The mean annual temperature is about 47°F, with a mean of 12 to 30°F for the winter months and 60 to 70°F for the summer months. The extreme temperatures range from -30°F in the winter to 100°F in the summer.

3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS

No environmentally significant operations have been identified for the Sun Prairie housing units.

Although these housing units were originally constructed to support Truax Air Field, the housing area is completely independent of Truax Air Field with respect to water, sewer, and electrical utilities.

No fuels besides natural gas have ever been used or stored at the property.

Asbestos-containing floor tiles and exterior siding were used in construction of the housing units. However, these materials were all found to be in good condition.

4 KNOWN AND SUSPECTED RELEASES

No major releases or impacts to the environment have been identified for the Sun Prairie housing facility. No hazardous wastes or hazardous materials are stored on-site.

5 PRELIMINARY ASSESSMENT CONCLUSIONS

Although these housing units were originally developed in support of Truax Air Field, all available documentation and circumstantial evidence support the fully independent operation of this housing property from Truax Air Field. No wastes from Truax Air Field operations were delivered to this property for management or disposal.

No asbestos-containing insulation is present in the housing units. Floor tiles and exterior siding may contain asbestos. However, these materials are all in good condition. No problems with deterioration of these materials have been documented.

No records indicate a problem with PCB-related contamination at this site. The local power company maintains the electrical transformers. No evidence of spills or leaks from any of the three on-site transformers was observed.

6 RECOMMENDATIONS

The Sun Prairie housing area does not represent an imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic constituents have ever been released from this property. No immediate remedial actions are warranted for this site.

No action is recommended prior to the release of this property.

REFERENCES

1. *Base Realignments and Closures*, Report of the Secretary's Commission (Dec. 1988).

2. *The Municipal Year Book 1988*, Vol. 55, prepared by the International City Management Association, Washington D.C. (1988).

3. Wisconsin Open File Reports 72-4, 73-3, and 73-4, Wisconsin Geological and Natural History Survey (1972).

4. Weidman, S., and A.R. Schultz, Wisconsin Geological and Natural History Survey, *The Underground and Surface Water Supplies of Wisconsin* (1915).

5. U.S. Geological Survey, *Mineral and Water Resources of Wisconsin* (1976).

APPENDIX:

PHOTOGRAPHS OF SUN PRAIRIE HOUSING FACILITY AND SURROUNDING LAND

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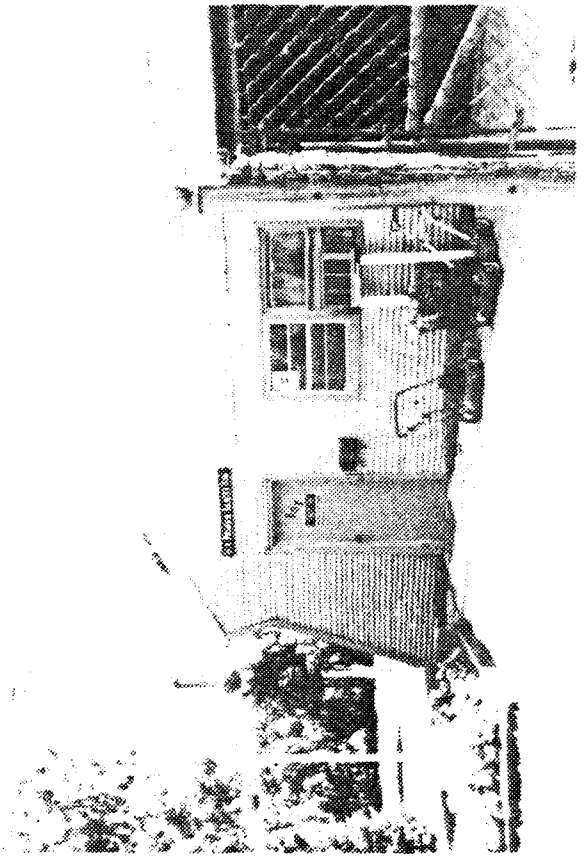

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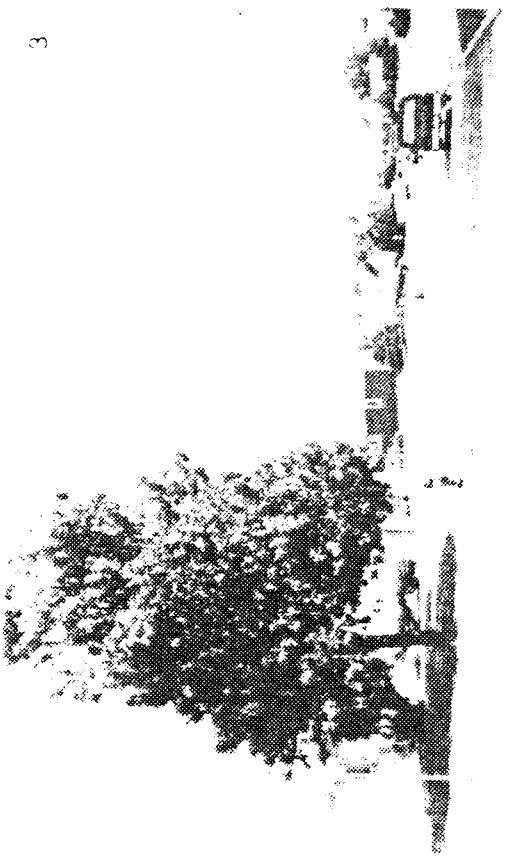

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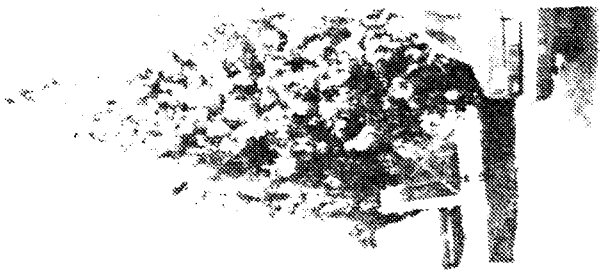

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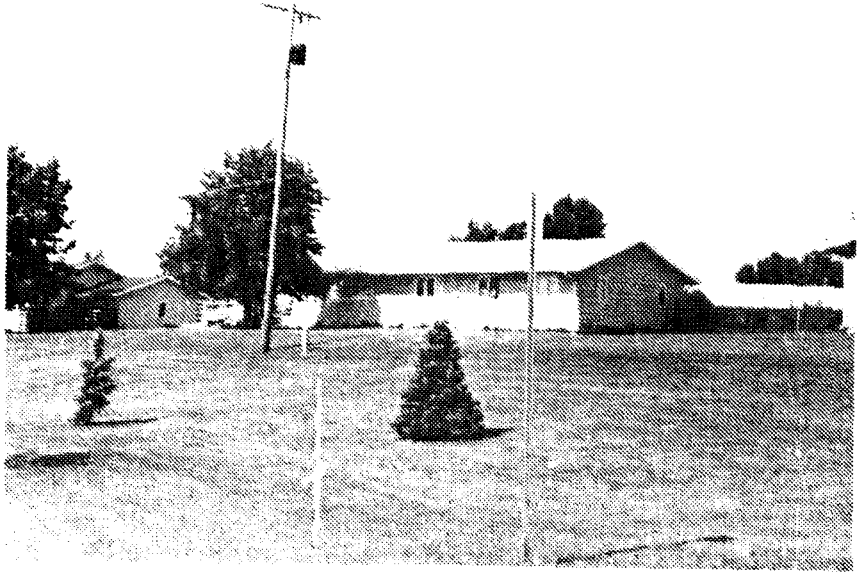

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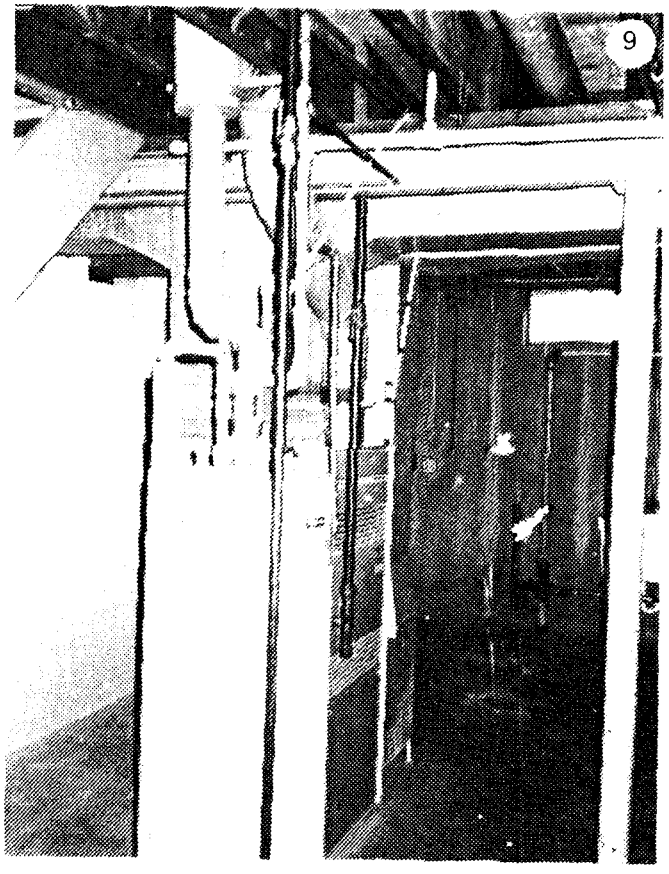

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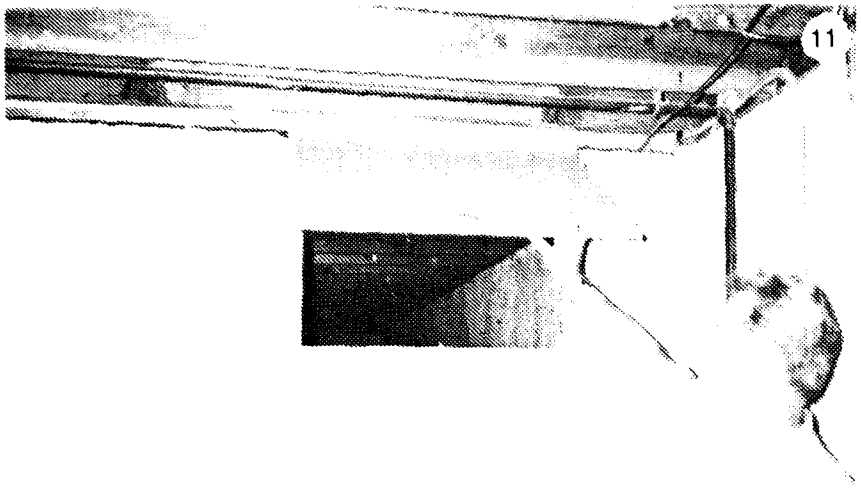

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IDENTIFICATIONS OF PHOTOGRAPHS

1. Entrance to the Sun Prairie housing facility as seen from Vandenburg Street facing east; Vandenburg Street intersects Bird Street near the foot of the Sun Prairie city water tower, shown here.

2. Housing area's maintenance shop and office (Bldg. 807), with corrugated steel siding; this building is located at the entrance on Vandenburg Street.

3. General view of the housing area; Andrews Drive as seen from its intersection with Schumann Street, facing south.

4. Another general view from the same location as in Fig. 3, this time looking west on Andrews Drive.

5. Playground area and tennis courts, in western section of area and within a large lawn bordered by Andrews Drive and Vandenburg Street; an electric utility pole with a transformer mounted at the top, one of several that stands in the lawn area; transformers are the responsibility of the Sun Prairie Power Company.

6. Volley ball court in the playground area; again, two utility poles with transformers mounted at the top can be seen.

7. Single-family housing unit with attached garage on Stull Street, near the entrance to the housing area; the Sun Prairie facility contains different types of housing: three- and four-bedroom single-family homes, with attached garages; three- and four-bedroom duplexes, with attached carports; all homes have basements.

8. Rear of a housing unit on Fairchild Street; another utility pole with transformer can be seen.

9. Furnace and hot water heater in the basement of a housing unit; the pipes and duct work have no insulation.

10. Rear entrance to one of the duplex units on Andrews Drive; this unit has wood siding; units at this site have either aluminum or wood siding.

11. Crawl space in the basement of a typical duplex.

12. A housing unit, with attached garage, on Schumann Street; in the background are farm lands north of the facility; utility pole and electrical transformer can be seen behind the housing unit.

13. Another housing unit on Schumann Street; in background is a school building, north of the housing facility; on the western and southern borders (not shown) are residential buildings.